

CLAIMS

I claim:

1. A process for allocating carriers in a multicarrier system, the process comprising:
determining a location of a subscriber with respect to a base station;
selecting carriers from a band of multi-carriers to allocate to the subscriber according to the location of the subscriber with respect to the base station;
allocating selected carriers to the subscriber, and
indicating to the subscriber whether or not to adjust transmit power to above its normal transmit power range.
2. The process defined in Claim 1 wherein the closer the subscriber is to the base station the farther away the selected carriers are from the center of the band.
3. The process defined in Claim 1 wherein selecting carriers from the band of multi-carriers comprises:
selecting carriers closer to or at the center of the band when the subscriber is far away from the base station; and
selecting carriers farther away from the center of the band when the subscriber is close to the base station.
4. The process defined in Claim 1 further comprising:

receiving a request from a subscriber;
calculating a time delay and a path loss associated with the subscriber; and
determining transmit power requirements for the subscriber based on the
time delay and the path loss.

5. The process defined in Claim 4 wherein determining transmit power requirements is further based on signal-to-noise-plus-interference ratio.

6. The process defined in Claim 1 further comprising sending a command to the subscriber to use either a normal or extended power control range based on carrier allocation.

7. The process defined in Claim 6 further comprising adjusting a power control setting for the subscriber at the base station.

8. The process defined by Claim 7 further comprising:
assigning a spectral priority code to the subscriber based on whether the subscriber is near to or far from the base station, and wherein carrier allocation occurs based on the spectral priority code.

9. The process defined in Claim 8 further comprising allocating carriers at the center of the band to the subscriber when the subscriber is assigned a first predetermined spectral priority code.

10. The process defined in Claim 9 further comprising allocating carriers adjacent to carriers at the center of the band to the subscriber when the subscriber is assigned a second predetermined spectral priority code that is of a lower priority than the first predetermined spectral priority code.

11. An apparatus comprising:
a carrier allocator to determine spectral priority based on information gathered from access requests sent by subscriber units; and
a power control unit coupled to the carrier allocator to indicate a power control range for each of the subscriber units.

12. The apparatus defined in Claim 11 wherein the carrier allocator allocates carriers at edges of a band to the nearest subscribers.

13. The apparatus defined in Claim 11 wherein the carrier allocator classifies subscribers into priority groups and allocates carriers to each of the subscribers based on the priority group in which each of the subscribers resides.

14. The apparatus defined in Claim 11 wherein the carrier allocator monitors allocation of the carriers and dynamically reallocates carriers to subscribers.

15. The apparatus defined in Claim 14 wherein the carrier allocator reallocates carriers closer to the center of the band when a subscriber moves farther away from the base station.

16. The apparatus defined in Claim 14 wherein the carrier allocator reallocates carriers farther from the center of the band when a subscriber moves closer to the base station.

17. The apparatus defined in Claim 11 wherein the power control units commands at least one of the subscriber units to extend the power control range of the subscriber.

18. A method comprising:
a subscriber sending an indication to transmit; and
the subscriber receiving an indication of carriers selected based on distance of the subscriber from the base station in relation to other subscribers, the carriers for use in communicating with a base station.

19. The method defined in Claim 18 further comprising driving up or down subscriber transmit power depending on a location of the subscriber in relation to a base station.

20. The method defined in Claim 19 further comprising:

receiving a power control command from the base station, and wherein the subscriber drives up or down the subscriber transmit power base on

21. The method defined in Claim 18 further comprising:

receiving a command to use either a normal or extended power control range based on the carriers allocated; and

transmitting at a higher power while simultaneously meeting FCC ACPR emission requirements.

22. A method for communicating between a base station and subscribers

comprising:

comparing interference to adjacent channel leakage power with output power of a subscriber;

selectively allocating one or more carriers of a band to a subscribers in a multi-carrier system based on results of comparing the adjacent channel leakage power to the output power, wherein one or more subscribers closer to a base station are allocated carriers closer to the band edges of the operating channel and one or more subscribers further from the base station are allocated carriers near or at the center of the operating channel.

23. The method defined in Claim 22 wherein the adjacent channel leakage power the FCC Adjacent Channel Leakage Power (ACPR).

24. The method defined in Claim 22 wherein the carriers being allocated comprise orthogonal frequency-division multiple access (OFDMA) carriers.

25. The method defined in Claim 22 wherein each carrier being allocated comprise a cluster of orthogonal frequency-division multiple access (OFDMA) carriers.

26. The method defined in Claim 22 wherein at least one of the one or more carriers comprises a spreading code and the multi-carrier system comprises a code-division multiple-access (CDMA) system.

27. The method defined in Claim 22 wherein at least one of the one or more carriers comprises an antenna beam in a space-division multiple access (SDMA) system.

28. The method defined in Claim 22 wherein the multi-carrier system comprises a wireless system.

29. The method defined in Claim 22 wherein the multi-carrier system comprises a cable system.